

Arctic-boreal Collaboration Meeting – September 20th, 2013

Attendees: Hans-Erik Andersen, Carla Evans, Nancy French, Andy Greg, Peter Griffith, Dan Hayes, Sean Healey, Elizabeth Hoy, George Hurt, Eric Kasischke, Barbara Kishchuk, Juha Metsaranta, Greg Reams, Megan McGroddy, Chip Miller, Ross Nelson, Chris Woodall

Introductions

The US Forest Service, Canadian Forest Service and NASA, through ABoVE (the Arctic-boreal Vulnerability Experiment) and CMS, are all focused on monitoring efforts in the arctic and boreal regions of Alaska and Canada. This meeting offered an opportunity for researchers and program representatives to discuss current and ongoing research and monitoring projects throughout the region, allowing for increased collaboration between these groups.

NASA Sponsored Activities

Information was presented on some of the ongoing activities sponsored by NASA, including ABoVE and CMS activities.

ABoVE

The Science Definition Team for ABoVE (above.nasa.gov) is currently drafting a Concise Experiment Plan, which will be used as a guide by NASA in developing calls for proposals and in selecting the science team for the experiment. Currently, the study domain for ABoVE is the arctic and boreal regions of Alaska and Canada west of the Hudson Bay.

The NASA Carbon Cycle and Ecosystems (CCE) Office is currently assembling a list of monitoring sites and other useful geospatial datasets in the arctic and boreal regions of Alaska and Canada. It is hoped that this list can serve as a baseline of knowledge within the region, and could be expanded as other datasets are located or become available. Current long term field sites compiled by the office include the locations of boreholes, permafrost monitoring sites, LTER sites, flux towers across Alaska and Canada, Changing Cold Research Network sites and others. One issue with these data is availability – available data at each field site can be highly variable. Known datasets are currently being added into ArcGIS Online so as to be made available to the research community.

P. Griffith will distribute a list of the current geospatial datasets which have been compiled by the CCE Office to those on today's call and participants can add to this list if they are aware of additional datasets.

Pre-ABoVE Funded Research Projects

There are currently 5 pre-ABoVE funded research projects: http://above.nasa.gov/cgi-bin/above/pi_list.pl?. Final products from these projects will be made publicly available, although these projects are still in the early stages of research.

N.French is a co-investigator on Tatiana Loboda's project to map fire disturbance in high northern latitudes (http://above.nasa.gov/cgi-bin/above/inv_pgp.pl?pgid=711&fullab=1#abanchor) and she discussed this project briefly on the call. The goal of the project is to create a consistent database of fires in tundra and boreal areas higher than 60° N latitude. The project will initially focus on areas within Alaska and Canada, but it will be extended to be Northern Eurasia as well. The project will utilize

multiple types of remotely sensed data (including VIIRS, MODIS, Landsat and SAR). A comprehensive database of fire perimeters is being developed, but is not yet available for distribution.

Carbon Monitoring System (CMS) Projects

The CMS initiative (carbon.nasa.gov) is designed to understand global carbon sources and sinks through characterizing carbon stocks and fluxes. Some of the participants on the call have currently funded CMS projects which they briefly discussed:

N.French has a CMS project (http://carbon.nasa.gov/cgi-bin/cms/inv_pgp.pl?pgid=651) to assess fire at fine scales in order to inform the GFED model and determine fire emissions. This project is in conjunction with efforts by E. Kasischke and T. Loboda. A final portion of the project includes developing uncertainty assessments within the product. Outputs from this project should be available soon, including emissions comparisons based on the different methodologies being used.

E. Kasischke's CMS project includes the development of a dataset to track fire disturbance throughout the 2000s in Alaska (http://carbon.nasa.gov/cgi-bin/cms/inv_pgp.pl?pgid=670). Using the Terrestrial Ecosystem Model (TEM), which includes an updated fuel combustion component, this project will develop assessments of forest disturbance from fire for 2001-2010 at a 60 meter spatial resolution. This dataset can then be able to be used for model development and validation.

R. Nelson, along with H. Andersen, Andy Greg and others not on the call, has a CMS project (http://carbon.nasa.gov/cgi-bin/cms/inv_pgp.pl?pgid=725) to develop the regional estimates of forest carbon stocks for the Tanana Inventory Unit of interior Alaska using Goddard's LiDAR, Hyperspectral, and Thermal Airborne Imager (G-LiHT). This project will include flying the instrument over 80-100 FIA plots in a gridded pattern. The first planning meeting is scheduled for this coming December. While some plot locations are known, others are still being determined. E.Kasischke suggested talking with Teresa Hollingsworth, a FS researcher in Alaska, as she coordinates with the Long Term Ecological Research (LTER) network in Alaska. The LTER is currently developing an extended site network which could be useful in determining sites for this CMS project.

Canadian Forest Service Sponsored Activities

B. Kishchuk discussed an international meeting which she is setting up in conjunction with the ABoVE SDT meeting in Ottawa this October. This side meeting would be an opportunity for Canadian groups to meet the SDT and also to bring together other agencies in Canada to learn about ABoVE. The agenda for this meeting is still being finalized.

Discussion

Overall, there are many projects which are currently underway in the arctic and boreal regions of Alaska and Canada. It is important for the various agencies and groups to remain in contact with one another as projects move forward in order to foster collaboration between groups. Additionally, CMS and ABoVE have many issues in common and combining the capabilities of these two large efforts to move forward understanding of carbon stocks could be important. It was suggested that this could be a topic for an upcoming CMS meeting.

The participants on the call agreed to review a list of geospatial datasets currently being compiled by the CCE Office for ABoVE and augment the list with additional datasets if they are known. As projects move forward, it may be a good idea to keep these groups in touch with one another. D.Hayes will be

presenting on ABoVE at the International Boreal Forest Association meeting this October, and there will be a town hall meeting on ABoVE at AGU this fall where more about ABoVE will be discussed.